THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 13. MARCH 31, 1945 VOL. 57.

Some Reflections on Present-Day Veterinary Research

(CONTRIBUTED)

The year 1944 has been an eventful one in the history of the veterinary profession. The controversial recommendations of the Loveday Committee on veterinary education have given rise to much criticism and self-searching within the profession. Whatever the fate of this Committee's proposals, the resulting stock-taking of our achievements has been valuable.

The purpose of this contribution is to try to analyse the strengths and weaknesses of veterinary research at the present time in a similar manner.

Research is an absolute necessity to a profession such as ours. The practice of the art and science of veterinary medicine and surgery, the applications of veterinary hygiene and the teaching in the schools, unless supplied by continuous fresh contributions from research become effete and static. Such a lack of fresh impetus would soon reduce our profession to quackery.

No right-minded person can question the need for research, but it behoves us to ask ourselves if the present structure of veterinary research could not be improved. It is probably true to say that more money is being spent on veterinary research now than at any time in our history and undoubtedly greater sums will be available in the future. Yet the expenditure of money alone does not always strengthen an organisation, it may even accentuate its defects.

The first point that arises is the recruitment of men to the ranks of research workers. The recently qualified veterinary surgeon is by no means ready to undertake research without considerable further specialised training in the subject on which he proposes to work. Apart from a certain number of young graduates awarded Studentships in Animal Health, a considerable number of junior posts in laboratories have been filled by young veterinary surgeons with little or no previous specialised training.

Incidentally, most of these posts recently have been filled by private treaty without being offered to open competition by advertisement. More often than not these recruits are immediately presented with a research problem to work on. They obtain their training in research technique, the discipline of scientific thought and factual knowledge as they go along, frequently without adequate supervision or guidance. This system, or lack of it, is fair neither to the worker nor to the proper solution of the problem on which he is engaged. In consequence, many veterinary research workers lack a background of knowledge of the fundamentals of their subject, a lack which takes many years to fill. Indeed, many fail to fill this gap in their training. In the writer's opinion, the view that the best training for a recruit to research is in the tackling of a research problem, is fundamentally unsound. Such a method may achieve satisfactory results with the one in a hundred " gifted by the gods," but with the ordinary run of men it blights their development in a way that few can escape, and many carry the mark of it for the rest of their lives.

The bias of veterinary research is on the practical side, and such a bias is expected and must always be present. However, when such research is pursued to the exclusion of more fundamental work, the outlook of the research worker becomes ill balanced and eventually the practical research itself begins to suffer. Veterinary research has produced much useful knowledge in the last 50 years and in terms of hard cash has saved agriculture considerable loss. Yet it must be admitted that usually the inspiration for such work has been drawn from fundamental work in other fields, and our own contributions along similar lines have been few. This tendency becomes more pronounced as research projects are increasingly dependent on direct grants from Government bodies. At least in veterinary research it is difficult to interest these bodies in any work that has no immediate practical end. The dearth of veterinary morbid anatomists, biochemists and physiologists is partly due to this attitude. Certainly, work on these subjects on academic lines gets little encouragement. Similarly, there is a wealth of material in the small-animal clinics of the colleges which has hardly been tapped from a research angle. If only from a comparative point of view such work would be valuable.

Financial support of research is accompanied by what one may call the committee system. Ostensibly these committees are for the co-ordination and guidance of workers engaged in research on the same problem. In some cases they exert a very close control over the work, planning the experiments, specifying the details of technique, etc., and subjecting the results to a close scrutiny before they allow them to be published. In many cases the research worker actually engaged on the problem is not a member of the committee, and he is little better than a technical assistant carrying out the bidding of a remote and intangible committee. As a result, his approach to this task often lacks originality and inspiration.

There is much to be said for the old system, where a worker or laboratory planned their own work, performed their own experiments and stood or fell by the results published under their own names on their own responsibility. However, such a system depends on the directors and senior workers adequately fulfilling their function; to do this, they must be able to give most of their energies to the actual direction and guidance of the workers placed under them. Such senior workers should be in close touch with the problems concerned and they should be able to give direct help at moments of difficulty. Unfortunately, all too often, senior workers are unable to exert this close influence. It is illogical to appoint experienced and skilled experimentalists to senior posts and then so overload them with administrative responsibilities that they are unable to employ their particular skill in bench work or even to give others the benefit of their experience. To some extent the committee system is partly to blame. A director or head of a department may have five or six or more problems under investigation in his laboratories and under the present arrangements he usually becomes a member of the committees concerned. In some cases he is not *au fait* with the details of the work, and he frequently has to be briefed by his juniors in the latest information before he attends the committee. Furthermore, the attendance at committees may so fill his time that he is often absent from his department. In fact a vicious circle is set up; the more work the head of the department is responsible for, the more often he is away from his department, and the less he knows about what goes on in it.

These criticisms are not idle complaints; they are commonly held views among many of the younger research workers, some of whom are finding it increasingly difficult to maintain their enthusiasm for research as it is organised to-day. Frustration and a sense of being without guidance are all too common.

The great need is for us never to lose sight of the fact that research which is to be vital, must also be free and untrammelled: that practical research must also be supported by adequate advances along fundamental lines. Specific suggestions include the more thorough training of recruits. There is much to be said for the serving of a two or three year apprenticeship under the supervision of an appropriate specialist, *who is capable of giving a thorough grounding* in the *fundamentals of his subject*. During this period the emphasis should be on training and no research results should be expected. Much of this fundamental training might be better acquired, as things are now, away from the specifically veterinary atmosphere.

One of the attractions of the Loveday Committee's proposals to research workers is that the establishment of veterinary colleges within universities may provide the freedom to pursue problems along fundamental lines with contacts with other workers similarly engaged. The financial strength of many universities gives them some independence and may provide an escape from the restrictive influence of the committee system.

Finally, if there must be organisation of research work by Government-sponsored committees, let it be done by men actually engaged in the work under the chairmanship of a senior worker similarly employed. Such an arrangement would help to free directors and heads of departments for their real function, namely, the supervision of the work going on in their laboratories.

At a recent meeting of the National Sheep Breeders' Association members were told that enquiries concerning British sheep had been received from South America, South Africa, Australia and India. In addition the Russian Trade Delegation in Britain had asked for all information available.

A Possible Effect of a State Service upon a Profession

J S. STEWARD, F.R.C.V.S., D.V.S.M.
HEREFORD

In view of the interest shown in the proposed "nationalisation" of the medical profession and the increasing threats to local administration in favour of centralisation it is interesting to consider if any effects are known to have followed any such change.

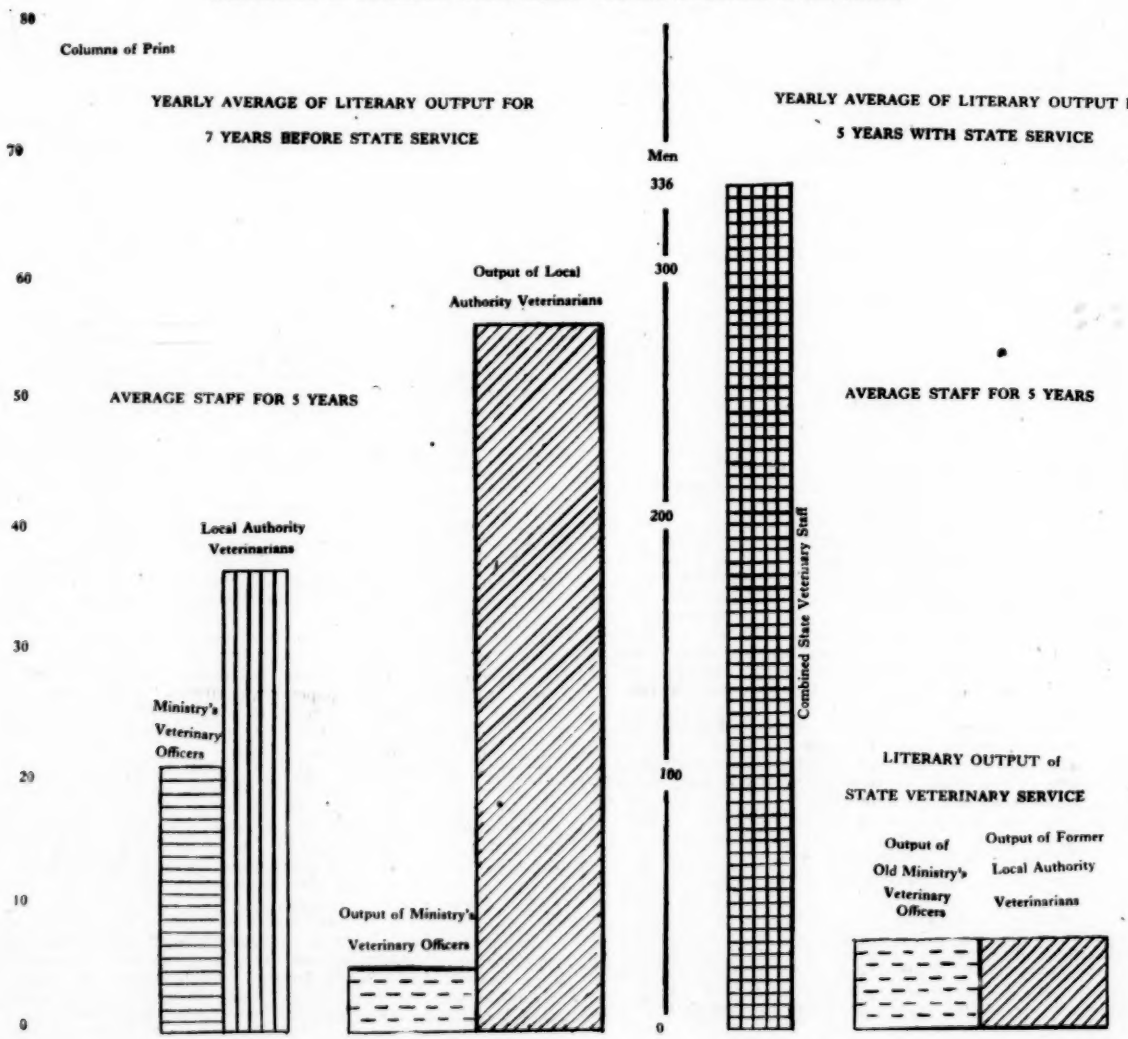
The veterinary profession, or at least that part of it in the employment of the Local Authorities, was the first to be centralised under the provisions of the Agriculture Act, 1937. As a result of the passage of the Act the Local Authorities were deprived of their veterinary obligations under the various Milk and Dairies and Diseases of Animals Acts and Orders. At the same time their whole-time veterinary officers (approximately 200) were merged with the smaller veterinary staff of the Ministry of Agriculture and Fisheries (approximately 100 veterinary inspectors). This merger took place on April 1st, 1938.

Up to that date the Chief Veterinary Officer of each Local Authority published annual returns of the results of the veterinary examinations under the various Acts and Orders and most of these were reviewed in the veterinary Press. Since 1938 no such data have been provided by which one could compare the results of the centralised veterinary service with those of the pre-existing services and, in fact, the Chief Veterinary Officer of the Ministry has ceased to publish the formerly annual report of "Proceedings under the Diseases of Animals Acts." Furthermore, it is not possible to compare the cost of administration of the present service in each or any administrative area with the previous cost of the pre-existing service. This is perhaps unfortunate as the ordinary taxpayer would be interested in this as an indication of what one might expect of the centralisation of other services.

Those interested in the professional literature dealing with the scheduled diseases of animals and veterinary public health matters will be aware that since 1938 the contributions to this branch of veterinary science have been remarkably few when compared with those in the days of the county veterinary services.

In order to make fair comparisons it is necessary to adopt rigid standards, and *The Veterinary Record* alone has for this purpose been examined as it is a fact that the great preponderance of English papers on the subjects under consideration is published in that journal. It is also necessary to define the articles to be considered: they were taken as being papers dealing with the scheduled diseases of animals, the conditions dealt with under the Milk and Dairies Acts and Orders, the administration of these enactments and definitely related subjects (including, for instance, "The Marking of Animals"). Annual reports, abstracts and editorial articles were excluded from consideration. In making this survey it was noted that the bulk of the publications come from the veterinary staffs of the Local Authorities, and so it was decided to record the proportions

PUBLICATIONS ON VETERINARY PUBLIC HEALTH MATTERS AS DEFINED IN THE ARTICLE



contributed respectively by the Civil Service and Local Authority veterinarians. This partition of the publications by former Local Authority veterinarian and the old civil servants was maintained, for interest, in the survey of the literature since 1938.

Papers dealing with meat inspection have been excluded throughout, as that function is not dealt with by the State veterinary service in this country.

It was not always found to be easy to decide if a paper should be included and, for instance, a public address by the Chief Veterinary Officer of the Ministry in 1939 was excluded as being largely a political and historical review.

As the transfer took place on April 1st the years have been considered as commencing on that date.

It was decided to deal with the publications graphically, using the number of columns of the paper filled. Since 1942 smaller type and larger printed columns have been used and to correct this for proper comparison the figure of columns occupied for the year April, 1942—April, 1943, has been doubled.

It seems unlikely that the decline in veterinary literature on Public Health matters and the scheduled diseases of animals is due to the war, as it started 18 months before the outbreak of war and it exceeds proportionally by three times the average reduction in general veterinary literature over the same period. Thus there is a reduction of approximately 24 per cent. in general veterinary literature as reflected by *The Veterinary Record* for the five years under discussion compared with a 78 per cent. reduction in the specialised literature for the same period, both being compared with the seven-year period before April 1st, 1938. Furthermore, it may be seen from the figure that while the contributions to the literature by the old Ministry veterinary staff have remained more or less static or increased insignificantly, the decline has occurred since 1938 among the former local authority veterinarians taken in to the Ministry's veterinary service in that year.

If the decline in literary output since the nationalisation of this section of the profession is to be attributed to Government control there would appear to be at least two possible reasons acting either individually or together. They are as follows:—

1. Discouragement, for the reason that articles have to be submitted to scrutiny by Head Office before permission to publish is obtained, and may be amended for political reasons.

2. A loss of incentive to publish, and of interest in, professional and scientific matters.

The latter would be a most serious reason and might well be the result of the general conditions of service and the principles of promotion adopted by the State veterinary department. This has been ably dealt with by McEwen (1943) whose criticisms were supported by a variety of constructive suggestions.

Summary

Figures are quoted to show the decline in the relevant veterinary literature following the nationalisation of the public health section of the veterinary profession.

Reference.—McEwen, A. D. (1943.) *Vet. Rec.* **55**. 298-299.

ROYAL SOCIETY'S WORK FOR SCIENCE

State Grants-in-Aid

The Royal Society has been informed that the Treasury has provided in the estimates for the fiscal year 1945-46 for the following grants which are administered by the society: For scientific investigations, £14,000; for scientific publication, £7,000; for scientific congresses, £1,600.

In view of the greater amounts to be available if these estimates are accepted by Parliament, and of present changing conditions, the Royal Society has decided that more frequent allocation is desirable. The last dates, therefore, in 1945 for receiving applications for grants from the Parliamentary grant-in-aid for scientific investigations will be March 31st, July 31st and November 30th, and the last dates for receiving applications for grants from the Parliamentary grant-in-aid for scientific publication will be June 15th and November 15th.

* * * * *

Weekly Wisdom

"'*What is the best test of a great general?' Wellington was asked, and Mr. Guedalla, in his biography, has given place of honour to the reply*: '*To know when to retreat, and to dare to do it.*' *And if we were to ask*: '*What is the best test of a great husbandman, a great statesman, a great people, a great civilisation?' might not the answer be*: '*To know when to rest, and how to do it?*'"—Times Litt. Supp. (Menander's Mirror), 1944, October 14th, p. 495.

Sulphonamides in the Treatment of Brucellosis

L. E. W. BEVAN, M.R.C.V.S.

I have read with great interest the paper on "Sulphonamides in Veterinary Practice," presented by Dr. A. W. Stableforth to the Yorkshire Division, N.V.M.A., at Leeds on April 28th, 1944, and the discussion arising therefrom as reported in your issue of January 6th, 1945, 1, **57**, 3.

Although the statements made by Dr. Stableforth and those participating in the discussion must be regarded as the *ultima dicta* in sulphonamide therapy, there is one which, with great diffidence, I venture to question, namely, that in *Br. abortus* infections "neither sulphanilamide nor sulphapyradine or sulphathiazone have proved of value (many authors)." In criticising this assertion, Dr. Ardley, who contributed valuable information in the discussion, stated: "It has been mentioned that sulphonamides were not effective in brucellosis, which was undoubtedly the case and which would be expected from laboratory investigations, despite which numerous reports of alleged cures of undulant fever in man had appeared in the literature. Undulant fever was naturally a condition in which a mistaken clinical impression of response to a treatment could easily occur."

As one who has had a very intimate experience of the curative effects exerted by sulphonamides in a case of human Brucellosis (undulant fever, abortus type), the subject being my own daughter, a little girl of 5½ years, who contracted the disease in Southern Rhodesia as the result of imbibing infected cow's milk when she was suffering from an attack of measles, and for a period of six months was under most careful and constant observation and treatment, I can most definitely assert that sulphonamides *when properly applied*, can exert a curative effect upon *Br. abortus* infection, at least in the human subject.

In view of the warning recently issued by Dr. W. M. Scott of the danger which may arise to those using the so-called "live abortion vaccine," it may be interesting, and, perhaps, reassuring, if I submit some further details of this case which was prematurely reported in the *Journal of Comparative Pathology and Therapeutics*, of December 31st, 1937, **50**. 4., pp. 338-344, and later in *The Veterinary Journal*, **94**, 12, pp. 441-445, and was subsequently discussed at a meeting of the Comparative Section of the Royal Society of Medicine.

In the former it was recorded as the "Treatment of a Human Case" (of Abortus Fever) "with Prosepticine," and it is there stated that "There being no recognised specific treatment for this disease, it was decided to try the effects of Prosepticine which, according to recent literature, is as effective against haemolytic streptococci as prontosil, but less toxic. As the administration of the drug was left to the writer, he could only summon up courage to apply it at first in small doses of ½ gramme, three times a day, but as no ill-effects were noticed, and the patient showed marked improvement, he became bolder and gradually increased the dose to ½ gramme three times a day. The dosage and quantity administered are shown in the chart. From the second day, when the child had received only 1½ grammes of prosepticine, an improvement was noticed in her clinical condition, and from day to day the improvement increased. The afternoon elevation of temperature and weakening sweats gradually became less, and after the fourth day the latter only occasionally occurred. Appetite returned, the patient became cheerful, the temperature, although slightly irregular, showed no marked elevations. But for a persistent constipation which did not yield to the mild purgatives which only could be administered, the patient appeared to be on the road to recovery." In a footnote to this report the editor of *J. comp. Path.* wrote: "After the despatch to us from South Rhodesia on December 11th, 1937, of Mr. Bevan's paper, our attention has been drawn [*Lancet*. **ii**. (December 11th), 1385 Annotation] to the report of another successful treatment of a human patient with compounds of the sulphanilamide group [Béthoux, L., Gourdon, E., and Rochedix, J., *Bull. Soc. Méd. Hôp.* Paris, November 15th, 1937, p. 1297. Several cases of recovery after similar treatment have subsequently been recorded.—Ed.].

Unfortunately my optimism was but short-lived. Before the above note had been received in England I had cause to report to the Editor (Dr. J. T. Edwards) that my daughter had suffered from a very severe relapse and appeared to be "fading away." Indeed, from reference to my temperature charts and notes, she suffered from an irregularly elevated temperature, not of an undulant type, but highest always at midday, and periods of severe illness, until April 7th, 1938, when her life being despaired of, heroic doses of sulphonamide—P (B.D.H.) were administered with immediate and permanent success.

Space does not permit me to reproduce in detail my charts and records of the case which are at all times available to those interested. Suffice it to say that daily small doses of sulphona-

mide—P, varying from 0·25 to 0·5 gramme twice or thrice a day between February 23rd and March 4th—a total of 9 grammes—temporarily ameliorated the clinical condition but did not effect a cure. Indeed, on March 20th, a very severe relapse occurred and miraculously on that day Dr. Isador Rosen, of Salisbury, very kindly telephoned to me to tell me that he had effected a complete cure of a similar case—also a little girl recovering from measles who had contracted abortus fever from milk from the same herd—by giving massive doses of sulphonamide at the height or summit of the temperature reaction. On return to my home I found my daughter in a critical condition, and, in fear and trembling, I administered 2 grammes of sulphonamide together with brandy and glucose which I had previously found useful in maintaining the action of the heart and respiration. Early on the following day I administered a second dose of 1½ grammes and thereafter 1½ grammes daily for six days. Later I gave 1 gramme on alternate days until 13 grammes in all had been administered. But the effects of the first large dose were dramatic. The following day the worst symptoms had subsided and thereafter she made the proverbial "uninterrupted recovery." Her agglutination reaction which had hitherto been positive gradually became negative and has remained so until the time of writing, which appears to indicate that in this case, at least, neither a faulty diagnosis nor "a mistaken clinical impression of response to a treatment" occurred.

I, therefore, submit that in certain circumstances the sulphonamide compounds do exert a specific curative effect on *Br. abortus;* a view which is supported by Mr. E. R. Cook in your issue of January 20th, 1945, who writes: "Although two separate medical practitioners had assured me that treatment with any of the sulphonamide series of drugs was of no avail in the treatment of undulant fever, sulphadiazine was tried" in his own case with "a thoroughly successful result." In my opinion it depends upon how and when the drug is administered. Inadequate doses administered *au froid* may ameliorate symptoms but may convert an acute attack into a chronic infection which may "flare up" later; and, with relapses at shorter intervals, the organism may become partially resistant to the drug. But when massive doses are given at the height of a reaction, as indicated by temperature and clinical condition, a sterilising cure can be effected. This, in my experience, is what happens when certain forms of trypanosomiasis are treated with Bayer 205.

It is no doubt true that the sulphonamides have not proved completely successful in the treatment of contagious abortion, or even mastitis, of the cow. This may be due to the manner and time at which they are administered. Or, perhaps, the cow "has something to do with it." It is well to remember the reply of Koch to Kleine, "a mouse is not a man." And it is never wise to be too dogmatic in such matters, as is shown by your issue of January 13th, 1945, in which you quote the *Lancet* as saying: "The many pharmacological studies which have now been made of the sulphonamides demonstrate the impressive variety of their actions—many of them undesirable in chemotherapy." And, later, it continues: "Para-aminobenzoic acid is involved in reactions effected by the sulphonamides, but these reactions have not been specified, nor have the enzymes been isolated, as have those producing the secondary action of the drugs on carbonic anhydrase. Moreover, the drugs have other types of action on micro-organisms. Recent[1] reports have shown that inhibition of the brucella-like organism *Bacterium tularense* and the spirochaetic *Treponema recurrentis* by sulphonamides differs from the main antibacterial effects of the drugs in not being antagonised by p-aminobenzoate." At best, therefore, the action and uses of sulphonamides in veterinary practice are somewhat empirical.

* * * * *

BOVINE TUBERCULOSIS ELIMINATION METHODS IN BRISTOL

At a recent meeting of the Bristol Health Committee, the chief health inspector (Mr. R. J. Redstone) reported that in July of last year, in an effort to explore all means at hand to trace affected cows, the department started a system whereby all calves examined in the city and found to be affected with tuberculosis were specially recorded and the details notified to the representative divisional veterinary offices of the Ministry of Agriculture. That method was not a substitution for the milk-testing method of tracing infection, but an additional effort to insist on the more rapid elimination of bovine tuberculosis. Results so far obtained were that of 23 calves condemned as affected with tuberculosis, ten of the dams had since been slaughtered as the result of the investigations following the notifications.

The veterinary officers for the areas concerned had co-operated in a very enthusiastic and helpful manner. More affected cows had been traced and eliminated in six months by this method than had been traced and eliminated in a year as a result of the biological testing of milk.

CLINICAL COMMUNICATIONS

Ovine Pyogenic Infection

due to B. Purifaciens? (Christiansen)

P. E. MULLANEY, M.R.C.V.S.

Veterinary College, Dublin

Material.—This consisted of a lung and the liver of a three-year-old ewe.

History.—The one ewe affected kept away from the flock for 14 days before death.

Post-mortem Examination.—No marked evidence of emaciation or anaemia. The lesions, which were confined to the liver, lungs and mediastinal glands, took the form of multiple abscesses, varying in size from that of a pea to that of a walnut or larger, well encapsulated and containing a greenish plastic pus.

Smears stained by Gram failed to reveal any organism. The pus was seeded on to liver agar and incubated at 37° C. A fairly profuse growth, consisting of numerous moist discrete, greyish colonies, about 3 mm. in diameter, was present in 18 hours. Smears from the culture showed Gram negative rods with rounded ends. Occasional ovoid filamentous forms were also present. The organism was non-motile. After sub-cultivation the discrete colonial development was maintained to a marked degree, particularly at the edges of the growth.

Fermentation Reactions.—Glucose, maltose and mannite were fermented with the production of acid only. Dulcite remained unchanged, while lactose was slightly fermented after 14 days.

Pathogenicity.—A rabbit and guinea-pig were each inoculated subcutaneously with 1 c.c. of a saline suspension of the growth from an agar slope. The latter died in 30 days, revealing abscesses at the site of injection, precrural, popliteal, mediastinal lymph nodes and the lungs. The pus was greenish and plastic and rich in organisms similar in every respect to those isolated from the original material. The rabbit was killed after 37 days. Abscess formation was confined to the local lesion and popliteal lymph node. There was pronounced emaciation and anaemia.

The morphological, cultural and biochemical characters of this organism are similar to those described by Magnusson (1929), Jowett (1931) and Craig (1932). It differs, however, in respect of its pathogenicity for the rabbit and guinea-pig as these test animals were insusceptible to the English and Swedish strains. Pathogenicity tests were not carried out by Craig.

The strain in question, which is the one responsible for this type of pyogenic infection of sheep encountered in Eire, may be a highly virulent variant in its behaviour towards laboratory animals. It must be stated, however, that the condition as seen here in sheep is not so malignant as that described as occurring in other countries.

References

Magnusson, H. (1929.) *J. comp. Path.* **42**. 73.
Jowett, W. (1931.) *Ibid.* **44**. 202.
Craig, J. F. (1932.) Unpublished report.

* * * * *

Glaucoma in Cattle*

C. H. DOWNE, M.R.C.V.S.

Diss

We have met this condition in our practice in six cases, all of which have appeared within the last two years. The animals affected were: two Ayrshire heifers, ten months old; one Ayrshire heifer, six months old; two Friesian bulls, 9½ months old and one Friesian bull 8½ months old.

In three of these animals it is known that the condition arose overnight and in the others it was suddenly noticed that they had eye trouble, but whether the occurrence of the condition was sudden or not was not definitely established. In all cases both eyes were affected.

As you are all aware, the essential feature of glaucoma is increased intraocular tension due to an excess of aqueous humour, and in all our cases the glaucoma has been primary in that it has arisen without any apparent antecedent definitely recognisable disease of the eye. The increased intraocular tension has been quite obvious, for the eyes were staring, protruding and hard to the touch and in all cases the animals were blind.

Only in one of these cases, that of the youngest Ayrshire heifer, did any alteration occur. The other animals were fattened and slaughtered. Mr. Blakemore was called in to see this heifer. In treating it I had used adrenalin oculets. Mr. Blakemore suggested that we might try to lessen the intraocular tension by operative

* Presented to the Summer meeting of the Eastern Counties Division, N.V.M.A., at Bury St. Edmunds, August 15th, 1944. Received for publication February 12th, 1945.

means, but subsequent to this the tension appeared to get less and the eyes returned to a normal size and the heifer now seems to be able to see a little.

As regards the aetiology of the condition, it seems obvious that it is due either to interference with the drainage of aqueous humour from the anterior chamber or to an overproduction of the aqueous humour. What the causative factor is that brings about either or both of these conditions I am not prepared to say.

May I be allowed to remind you of the mechanism which governs the flow of aqueous humour. This fluid is constantly being secreted from the blood stream and is just as constantly being removed by the lymphatics adjacent to the anterior chamber, its chief channel of exit being through the Spaces of Fontana and thence to a circular venous sinus near the corneo-scleral margin called the canal of Schlemm. This mechanism of exit depends, therefore, on the patency of the angle of the anterior chamber and if this angle is closed up the removal of fluid is at once prevented. Thus, if the periphery of the iris be pressed forward this would close the angle and so bring about the condition of glaucoma. I believe that in old people it is thought that progressive increase in size of the lens may cause glaucoma.

As regards the feeding of these animals, constant features in the diet of all of them were sugar beet pulp, crushed oats and hay. In the case of the two older Friesian bulls, in addition to these materials they had cattle beet and cake, and it seems to me significant that the glaucoma arose in both animals at exactly the same time when they had been living together in the same box under precisely the same conditions.

I would be very interested to hear about cases of glaucoma that have been met with by other members and also to hear their views on the subject.

ABSTRACTS

[I—The Pharmacologic Action of 2, 2 Bis-parachlorophenyl-1, 1, 1, trichlorethane [D.T.] and its Estimation in the Tissues and the Body Fluids. Smith, M. I., and Stohlmann, E. F. (1944.) (*Pub. Health Rep., Wash.* **59**. 984.).

II—Pathology of Experimental Poisoning in Cats, Rabbits and Rats with 2, 2, Bis-parachlorophenyl-1, 1, 1, trichlorethane. Lillie, R. D., and Smith, M. I. (1944.) *Ibid.* **59**. 979.]

I—First synthesised by Zeidler, O. (1874. *Berl. deutsch. Chem. Gesellschaft.* **7**. 1180) D.D.T. attracted little attention pharmacologically until its insecticidal action was noted recently. Its toxicity and cumulative action and the fact that it is absorbed through the skin make it desirable to devise a method of detecting it in the tissues.

The symptoms of poisoning with D.D.T. strongly resemble those of poisoning by phenol observed in experimental animals, except that the action of D.D.T. is delayed up to several hours and may persist for several days. It produces hyperexcitability, generalised fine or coarse tremors which end in flaccid or spastic paralysis, with occasional tonic or clonic convulsions preceding death by respiratory paralysis. These symptoms suggested the possibility that phenol-like substances were produced in the body, but examination of the blood by the method of Smith, M. I. (1933. *Pub. Health Rep., Wash.* **48**. 1487) failed to show significant amounts of either free or conjugated phenols. The authors then enquired whether D.D.T. in the tissues could be estimated by means of the five atoms of chlorine which its molecule contains. They describe the steps by which they arrived at the method finally adopted. Briefly, the method is to macerate and dehydrate the animal tissues with Na_2SO_4 and, after extraction with acetone, to determine the chlorine in the extracts. Modifications necessary for the estimation of D.D.T. in bile, faeces and urine are described. The method assumes that the D.D.T. is present in the tissues unchanged, but there is at present no proof that it is not degraded there to some degree. It was found that this method gave good results when it was tested by adding D.D.T. to animal tissues in amounts of 10 to 20 mgm. of D.D.T. per 10 to 20 gm. of tissue. It was found that the method estimated 80 to 90 per cent. of the D.D.T. added. When a rabbit weighing 1·8 kg. was given orally 0·55 gm. of D.D.T. per kg. in olive oil and killed two days later, chlorine estimations obtained by the method described revealed in the tissue samples taken the following amounts of D.D.T. calculated as D.D.T. per 100 gm. or c.c.: blood 10·7 mg., liver 6·3 mg., kidney 3·9 mg., brain and spinal cord 16·0 mg., bile 80·0 mg., bladder urine 16·8 mg. Since the method recovers only 80 to 90 per cent. of D.D.T., these figures may be 10 to 20 per cent. too low.

The toxicity of D.D.T. was studied by giving it either in olive oil or in aqueous suspension in gum acacia. With the latter method absorption is poor and toxicity is lower than when it is given in olive oil. In rats given a 1 to 5 per cent. solution in olive oil into the stomach the L.D. 50 is 150 mg. per kg.; in rabbits it is 300 mg. per kg. Death may be delayed for several days. Thus in rats it is more than three times as toxic as phenol given in the same way and in rabbits "possibly twice as toxic." A table summarises the toxicity results. The cumulative effects were studied by giving repeated small doses producing chronic poisoning. Rats weighing 80 gm. were always killed in 18 to 80 days when they were fed with 0·1 per cent. D.D.T. in a semisynthetic diet containing 18 per cent. casein. When 0·05 per cent. was given they survived for three months with impairment of growth. When rabbits were given a daily oral dose of 50 mg. per kg. of D.D.T. in olive oil, a dose which by itself produces only slight or no effect, they died in 15 to 23 days after a total dose of 0·75 to 1·25 gm. per kg. Such doses produced less pronounced effects on the central nervous system; the most prominent changes were in the liver (hyaline centrolobular and midzonal degeneration with a variable amount of coagulation necrosis (see Lillie and Smith below)). A mild anaemia also resulted, with reduction of haemoglobin values. Two cats given 50 mg. per kg. daily on every second or third day developed all the symptoms of poisoning; one died within 12 days after a total dose of 500 mg. per kg., the other within 15 days after a total dose of 300 mg. per kg. Another cat given four doses of 90 mg. per kg. died within ten days.

Absorption from the skin was studied (1) by applying D.D.T. either in solution in dimethylphthalate over the shaved anterior abdominal skin (dimethylphthalate is non-irritant and, so far as the authors could discover, not absorbed by the skin, and its toxicity was low, the M.L.D. for rabbits being 3 c.c. per kg. and for rats 7·5 c.c. per kg.); (2) by applying cloths impregnated with D.D.T. dissolved in acetone and air-dried around the shaved skin of the area between the upper thoracic and lower lumbar regions. The results showed that, applied in dimethylphthalate D.D.T. is definitely toxic and sufficient is absorbed through the skin to damage the central nervous system and the liver; but applied on cloths its toxicity was slight, although some damage to the central nervous system was caused in about half the animals. Ingestion of the D.D.T. was prevented by immobilising the animals on their backs while the D.D.T. was applied.

The authors also studied the influence of cyclohexanone on the toxicity. Cyclohexanone is a narcotic, D.D.T. a convulsant, and it has been suggested that cyclohexanone should be used with D.D.T. Cyclohexanone is about one-tenth as toxic to rats as D.D.T., its "acute toxicity" being 2 gm. per kg. To rabbits the M.L.D., when it is given orally, is stated to be 1·6 to 1·9 gm. per kg. by Treon, J. F., Crutchfield, W. E., jun., and Kitzmuller, K. V. (1943. *J. Industr. Hyg. and Toxicol.* **25**. 199). The authors found that cyclohexanone seemed to give some degree of antagonism to D.D.T. and suggest that narcotics in general may show a similar antagonism.

II—This paper summarises the pathological findings in five cats, 41 rabbits and 34 rats used by Smith and Stohlman for the experiments described above. It is impossible to summarise all the details given and the paper itself must be consulted for these.

In spite of the pronounced neurological symptoms produced by D.D.T. (*e.g.* tremors, spasticity, terminal extensor rigidity, see Smith and Stohlman above), the histological changes in the central nervous system were relatively slight. In cats, rabbits and rats they consisted of vacuolation round the large nerve cells in the cord and cerebral motor nuclei and, in cats and rats, tigrolysis and cell vacuolation.

The most striking changes were seen in the liver. Here there was hyaline degeneration similar to that described in cases of poisoning by azo-benzene and some of its derivatives (see Smith, M. I., Lillie, R. D., and Stohlman, E. F. (1943. *Pub. Health Rep., Wash.* **58**. 304.)) In rats and rabbits hyaline oxyphil masses were formed in the central part of the cytoplasm and these were surrounded by vacuoles. There was also a variable amount of fatty degeneration of liver cells, often centrolobular, in cats, rats and rabbits. In cats, rats and rabbits there was midzonal and centrolobular coagulation necrosis. In rats and rabbits this was accompanied by interstitial and proliferative reaction leading to replacement by new vascular granulation tissue. This process, when it was more extensive, led to trabeculation. In rats and rabbits there was focal hydropic degeneration of liver cells. Similar lesions have been described by Nelson, A. A., *et al.* (1944. *Pub. Health Rep., Wash.* **59**. No. 59—in press at the time of writing the present paper). Muscle necrosis with proliferative reaction was also seen in one rabbit. Nelson *et al.* also found this and also necrosis of heart muscle in the rabbit and guinea-pig.

G. L.

Toxicity of D.D.T.

Dr. Paul A. Neal, chief of the research section of the Division of Industrial Hygiene of the Public Health Service, federal security agency, speaking at a meeting of the National Museum Entomological Society of Washington on November 2nd, said that D.D.T. in the desired insecticidal concentration in air will not cause injurious

effects on humans. Studies at the Industrial Hygiene Research Laboratory of the National Institute of Health, Bethesda, Md., showed that D.D.T. in concentrations up to 10 per cent. in inert powders used for dusting clothes, as for the extermination of lice, offers no serious health consequences. The use of 1 per cent. D.D.T. deobase mist mixture had no toxic effect on rabbits and should be safe as a fly spray. A clinical and laboratory study of three men who had had several months' continuous occupational exposure to D.D.T. in its various forms as an insecticide showed no definite toxic effects.

Inhalation studies of the toxicity and potential dangers of aerosols, dusting powders and mists had been made at the Industrial Hygiene Laboratory on mice, rats, guinea-pigs, dogs, monkeys and humans and showed a marked difference in susceptibility in different animals. Mice were more susceptible than rats: guinea-pigs, rabbits, dogs and monkeys were most resistant. Toxic symptoms set in only when relatively large doses were ingested or absorbed through the skin. Experiments with dogs showed that daily insufflation of 100 mg. of pure D.D.T. per kilogram of weight of the animal caused definite toxic symptoms in only one out of the three dogs tested after a period of 18 days. But massive doses by the mouth or through the skin will cause toxic symptoms. Heavy contamination of foods should be avoided. Neal concluded that the use of D.D.T. in 1 to 5 per cent. solutions in 10 per cent. cyclohexanone with 85 to 95 per cent. Freon as aerosol should offer no serious hazards as an insecticide.—*J. Amer. vet. med. Ass.* (1944.) **105**. 421.

* * * * *

[Influence of Intracutaneous Injection of Sonic Filtrate of *Br. abortus* on the Blood-leucocyte Picture of Cattle Positive to Brucellosis. Live, I. *et alia.* (1944.) *J. inf. Dis.* **75**. 2.]

The data given in this paper present an additional test for brucellosis. The authors have studied the changes in the leucocyte picture which result from the intradermal injection of sonic filtrates of *Br. abortus* into infected and non-infected cattle.

The test consists of injecting 0·1 ml. of sonic filtrate intradermally into the caudal fold, and into the vulva. Each inoculum contains 0·2 mg. protein as determined by the macro-Kjeldahl method.

The first study was carried out on nine cows, known to have been excreting *Br. abortus* in the milk for some time. Blood counts made at frequent intervals after the injection showed that within six to eight hours there was a marked increase in the number of immature and mature neutrophiles. The average increase in the percentage of immature neutrophiles at its peak was sevenfold, as compared with preinjection levels, that of the mature neutrophiles about 50 per cent. and the percentage of the total neutrophile count was doubled. These changes were accompanied by a relative and a slight absolute decrease in lymphocytes. The average total white cell count was increased by about 80 per cent., while the absolute number of neutrophiles was trebled within eight hours of the injection. The blood picture returned to the normal, or preinjection, level within 48 hours.

Similar blood changes were noted in another group of 30 cows affected with brucellosis of recent origin, tested three and six hours after injection with sonic filtrate of *Br. abortus*.

Six cows giving a negative reaction to the agglutination test for *Br. abortus* infection failed to show any significant variation in the total and differential leucocyte counts after injection.

I. W. B.

* * * * *

[Preliminary Experiments with *Amorpha fruticosa* on Cattle Grubs. Featherly, N. I., and Harmon, K. S. (1944.) *J. Amer. vet. med. Assoc.* **105**. 291.]

Amorpha fruticosa L., the Cat Willow, is a leguminous shrub of which the fruit and, to a less extent, the root has insecticidal properties.

For the experiments recorded the fruit was coarsely ground and extracted with acetone, in a Soxhlet extractor, for 24 hours, after which the excess acetone was distilled off. The extract from 100 gm. of the fruit was then diluted to a litre with distilled water. This gave a 10 per cent. emulsion. The extract which contained some acetone formed a permanent, creamy-white emulsion with the water.

In a preliminary experiment with four infested cattle inconclusive results were obtained with a 30 per cent. solution—a few dead warble grubs (specific identity not mentioned) being found, together with living ones eight days after treatment. When used at 10 per cent. (undiluted) strength a larger number of dead larvae were found at subsequent visits.

In a second experiment involving ten animals, the 10 per cent. stock solution killed all of nine or ten larvae in two cattle; and after using the same solution with soap added ten out of 13 larvae in two cattle were found dead; three remaining alive.

When used at 5 per cent. strength (*i.e.*, 50 per cent. dilution of stock extract) four living and four dead larvae were found in the cattle 15 days after treatment. In the two controls 13 larvae remained alive and three migrated.

The authors conclude that the 10 per cent. emulsion gave very promising results and that the addition of soap reduced its insecticidal activity. They admit that too few animals were used for final conclusions to be reached.

J. S. S.

QUESTIONS IN PARLIAMENT

Hill Sheep Industry

Major McCallum asked the Secretary of State for Scotland when this House may expect a Bill to be brought before it for the preservation of the hill-sheep industry in Britain.

Mr. Johnston: A Bill dealing with the hill-sheep industry in the United Kingdom is in preparation. My right hon. Friend the Minister of Agriculture and I hope that it will be possible to introduce it during the present session.

. . . . . .

Agriculture: Government's Long Term Policy

Mr. W. J. Brown asked the Minister of Agriculture if he can now announce the Government's long term policy for agriculture.

The Minister of Agriculture (Mr. R. S. Hudson): No, Sir.

Mr. Brown. Can the right hon. Gentleman give any estimate at all of the point in time or eternity, at which he will produce the Government's policy?

Mr. Hudson: No, Sir.

Mr. De la Bere: Is the right hon. Gentleman aware that I do not like his monosyllabic replies at all?

PROPRIETARY MEDICINE ADVERTISING

A meeting of the Publicity Club of London recently discussed proprietary medicine advertising.

Mr. J. F. McNulty, who opened the discussion, is reported by the *World's Press News* as saying that he held three charges against patent medicine advertising—it encouraged self-medication, many of the products were worthless, and costs were excessive. The persuasive methods used in this form of advertising often resulted in the delay of real medical help, but, on the other hand, if every mild sufferer sought the aid of a doctor, the pressure on doctors would be impossible to deal with. The danger, he thought, was in attributing some magic to the medicine, and there was a tendency to sell useful preparations for too wide a range of ills. It was dangerous for anyone without proper medical knowledge to treat their own ailments, and he maintained there was no just cause for advertising to encourage the medically ignorant to treat themselves on the basis of what they had been led to believe by shrewd advertising.

If they were not careful, continued Mr. McNulty, the Government would be called upon to regulate abuses in advertising of which proprietary medicines were particularly guilty. The Government's hand would be heavy and inexpert. They, as agents, should clean up their businesses and leave less chance for the Government to interfere.

Mr. J. S. Walmsley, Secretary of the Proprietary Association of Great Britain, said that proprietary medicines were reliable and well labelled, and saved people rushing to doctors for the least little ailment. He agreed that there should be some limitation of the claims made for some products, and explained that this was taken care of by the Act of 1941, which laid down certain claims which could not be mentioned.

Proprietary medicines, he contended, were less guilty of exaggerated claims than some of the catchpenny advertisements which appeared in the personal columns of some newspapers, and if advertising people wanted to clean up their businesses there were many other products to start on before patent medicines. The co-operation of Press, posters and cinema was necessary for some standard of advertising to be achieved to suit all parties. But control should be voluntary and should not be imposed by the Government.—*Pharm. J.*

* * * * * *

To facilitate the shipment of cattle, sheep, goats and swine from Liverpool to importer countries, a new quarantine station is being established in Liverpool. The station, which will be under the control of the Ministry of Agriculture, will be at Court Hey Farm, Broadgreen Road. It will be run on similar lines to the existing quarantine at Glasgow.

VETERINARY PRACTICE BY UNREGISTERED PERSONS

REPORT OF THE CHANCELLOR COMMITTEE

Summary of Principal Recommendations

In accordance with the recommendation made by the Loveday Committee on Veterinary Education in Great Britain, in July of last year the Minister of Agriculture and the Secretary of State for Scotland appointed a Committee, under the chairmanship of Sir John Chancellor, "to enquire into the extent and effect of veterinary practice in Great Britain by persons who are not registered veterinary surgeons and to make recommendations as to any measures which may be desirable to limit or regulate such practice."

The Committee has now issued its report, which is published as a White Paper (Cmd. 6611, H.M. Stationery Office, price 3d., postage 1d.), and below is reproduced the Committee's summary of principal recommendations.

The full text of the report will be published in our next issue.

. . . . . .

(1) In the national interest, in the interest of the veterinary profession and on humanitarian grounds, the practice of veterinary surgery by unregistered persons should be prohibited under penalty (para. 33).

(2) The prohibition should not apply to the treatment of an animal by its owner, the rendering of first-aid to an animal in an emergency, the destruction of an animal by painless methods, or the performance of the operation of castration and certain minor operations (para. 36).

(3) Unregistered persons who for any seven of the preceding ten years have been engaged as their principal means of livelihood in diagnosing and giving medical or surgical treatment to animals, are of good personal character and have attained the age of 28 years, shall be entitled to registration by the R.C.V.S. in a register of "Existing Practitioners," subject to appeal to the Privy Council in the case of refusal of registration (para. 41).

(4) Persons registered as "Existing Practitioners" should be subject to the disciplinary jurisdiction of the R.C.V.S., should have the right to sue for fees and should have the same facilities as registered veterinary surgeons for obtaining necessary drugs (para. 42). They should be permitted to use the title "Registered Animal Practitioner" (para. 48).

(5) Special consideration should be extended to the cases of unregistered persons who have served in His Majesty's Forces or who have been engaged during the war in work of national importance (para. 43).

(6) Provision should be made whereby the Minister of Agriculture and Fisheries and the Secretary of State for Scotland may from time to time, after consultation with the R.C.V.S., by Order declare that specified duties performed by unregistered persons under the direction of a veterinary surgeon shall not be subject to the prohibition of veterinary practice by unregistered persons (para. 51).

(7) The Minister of Agriculture and Fisheries and the Secretary of State for Scotland should be empowered to control the advertisement and sale of veterinary medicines (para. 52).

The constitution of the Committee is as follows:—

Lieut.-Col. Sir John Chancellor, G.C.M.G., G.C.V.O., D.S.O. (Chairman).
A. C. Brown, Esq., Provost of Kirkcudbright.
Sir Daniel Cabot, M.R.C.V.S., Chief Veterinary Officer, Ministry of Agriculture and Fisheries.
J. W. Salter Chalker, Esq., J.P., Chairman, Diseases of Animals Committee of the National Farmers' Union.
Charles Dukes, Esq., C.B.E., General Secretary, National Union of General and Municipal Workers.
Professor James Gray, M.C., M.A., Sc.D., LL.D., F.R.S., Member of the Agricultural Research Council.
Robert Hobbs, Esq., Member of Council of the Royal Agricultural Society of England.
C. M. Holmes, Esq., Vice-President, Association of Unqualified Practitioners and Animal Castrators.
W. F. Holmes, Esq., Member of Council of the Kennel Club.
W. D. Jackson, Esq., Past President, National Farmers' Union and Chamber of Agriculture of Scotland.
Sir Louis J. Kershaw, K.C.S.I., C.I.E., Member of the Loveday Committee on Veterinary Education.
Lieut.-Col. P. J. Simpson, D.S.O., F.R.C.V.S., T.D., J.P., Member of Council, Royal College of Veterinary Surgeons.

The Secretary to the Committee is Mr. G. H. Higgs, of the Ministry of Agriculture and Fisheries, of whose work the Committee express warm appreciation.

Evidence was laid before the Committee by representatives of the following bodies: Ministry of Agriculture and Fisheries, Royal College of Veterinary Surgeons, National Veterinary Medical Association, Royal Agricultural Society of England, National Farmers' Union, Association of Unqualified Practitioners and Castrators, National Society of Animal Consultants, Royal Society for the Prevention of Cruelty to Animals, Our Dumb Friends' League and the People's Dispensary for Sick Animals of the Poor (Inc.).

"CO-ORDINATED SCIENTIFIC RESEARCH"

In a leading article, headed as above, of a recent issue, the *Pharmaceutical Journal* observes: "Much has been said and written during recent months on the need for maintaining in the post-war period the same close link between scientific investigation and industrial output as that which has contributed so largely to our war effort. In the United States of America a scheme is now on foot for setting up a Federal Department to be concerned solely with the furtherance of research, and it may properly be asked whether Britain has any similar comprehensive plan in mind. We gather that the answer is that the Government is determined to press forward with the assistance of scientific research, but that it does not propose to set up a Ministry of Science. This was the view expressed by the Lord President of the Council at the recently held annual luncheon of the Parliamentary and Scientific Committee. Mr. Attlee's contention is that in each Government Department there should be persons trained in scientific matters and that there should be in every Ministry an appreciation of the part played by the scientist. To our minds this nebulous arrangement is not likely to provide all the demands that post-war stress is likely to make on British scientific effort, and more concrete plans are urgently needed. It is true that, to take one department, the Board of Trade, new research associations are being formed, and considerable sums of money are also being voted for universities, medical schools and teaching hospitals. This week in fact, the Government has accepted a recommendation by the University Grants Committee that the present annual vote of £2,149,000 should be increased for the next two financial years by £3,500,000, divided into £2,000,000 for general university purposes, £1,000,000 for developments in medical schools, and grants for teaching hospitals to the value of £500,000. Moreover, estimates have been accepted for extensive building programmes and capital developments of universities and medical schools in the ten years following the war. From these figures it is evident that a more realistic attitude is now being taken by the Government towards its responsibilities in furthering medical science, an attitude which may, perhaps, have been affected by the impending requirements of trained medical, dental and pharmaceutical personnel, under the new National Health Service. And, of course, in this field a certain degree of correlation is effected through the Medical Research Council, but it is to be hoped that even here in the post-war years much greater concentration and co-ordination of effort will be seen. In fact, we should have thought that a good case could easily have been made out for the collation of research by a central organisation which would, as it were, act as a link between the problems facing the various Ministries and decide how one body of research workers in one field could help another body in another field."

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

April 1st.—R.C.V.S. Annual Fees due.
April 4th.—Annual Meeting of the Scottish Metropolitan Division, N.V.M.A., at the "Dick" College, Edinburgh, 2.30 p.m.
April 5th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Peterborough (Angel Hotel), 2.30 p.m.
April 5th.—Meeting of the Central Veterinary Society at Conway Hall, Red Lion Square, W.C.1, 2 p.m.
April 11th.—R.C.V.S. Committee Meetings.
April 12th.—R.C.V.S. Committee and Council Meetings.
April 13th.—Meeting of the North Wales Division, N.V.M.A., at Llangollen, 2.30 p.m.
April 18th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, 1, Wimpole Street, W.1, 2 for 2.15 p.m.
April 20th.—Annual Meeting of the Mid-West Division, N.V.M.A., at Bristol (Royal Hotel), 2.30 p.m.
April 25th.—N.V.M.A. Sub-committee on First Aid Handbook, 36, Gordon Square, W.C.1, 2.30 p.m.
April 26th.—N.V.M.A. Committees at 36, Gordon Square, W.C.1: Loveday Report, 10 a.m.; Finance and General Purposes, 12 noon; Joint Veterinary Officers and Public Health and Parliamentary, 3 p.m.
April 27th.—N.V.M.A. Organising Committee, 36, Gordon Square, W.C.1., 10 a.m.; **Meeting of Council, N.V.M.A.**, at Friends' House, Euston Road, N.W.1, 11 a.m.
April 28th.—Annual General Meeting of the Association of Veterinary Inspectors, Royal Hotel, Woburn Place (Russell Square), W.C.1, 2 p.m.
May 8th.—R.C.V.S. Council Elections—last day for nominations.
May 22nd.—R.C.V.S. Council Election—Voting Papers issued.
May 29th.—R.C.V.S. Council Election—Voting Papers to be returned.
June 5th.—R.C.V.S. Annual General Meeting.
June 6th.—R.C.V.S. Committee and Council Meetings.

* * * * *

MEETINGS OF COUNCIL AND COMMITTEES, N.V.M.A.

The attention of members of Council, N.V.M.A., and of the committees concerned, is directed to the announcements of meetings made in our Diary of Events. Council will meet at Friends' House, Euston Road, at 11 a.m. on Friday, April 27th; the committee meetings will be held at 36, Gordon Square.

* * * * *

R.C.V.S. Council Election

Addresses of Candidates

The addresses of candidates for election to Council, R.C.V.S., will be published in our issue of May 19th. Those who desire to submit such addresses are requested to note that the closing date for their receipt (by the Editorial Representative, N.V.M.A., 36, Gordon Square, London, W.C.1) is Monday, May 7th, and that they must be limited to 250 words.

Since the publication, in our issue of March 10th, of the complete list of candidates nominated to that date, the nomination has been made of Miss Joan O. Joshua, of Finchley, N.3, her proposers being Dr. R. F. Montgomerie and Miss Marion Freak.

* * * * *

PERSONAL

Birth.—Ogle.—On March 21st, 1945, to Freda (*née* Norman), wife of R. G. Ogle, M.R.C.V.S., Rye, Sussex—a daughter.

. . . . .

Marriage.—Foulston—Nett.—At Pershore, on March 10th, 1945, F/Lt. W. Foulston, R.A.F.V.R., M.R.C.V.S., only son of T. E. Foulston and the late Mrs. A. L. Foulston, of Hallgarth, Minehead, to Mrs. E. M. Nett ("Toni"), only daughter of the late Herbert Yeomans, M.R.C.V.S., of Birmingham, and of Mrs. H. G. Yeomans, of the Red Hart Inn, Flyford Flavel, nr. Worcester.

. . . . .

On behalf of our readers we extend our felicitations to the "Father of the Profession," Mr. Samuel Laxton Hames, M.R.C.V.S., of Somerby, Oakham, Rutland, whose period of membership of the Royal College will extend, on April 1st next, to the wonderful span of 71 years. We would also congratulate that former tutor and present friend of so many members, Professor Edward Simpson Shave, F.R.C.V.S., M.R.C.S., L.R.C.P., of Bexhill-on-Sea, on the fact that on April 2nd he will have been qualified M.R.C.V.S. for 66 years.

. . . . .

Death.—Edgar.—On March 18th, at 31, Church Road, Burgess Hill, Sussex, Jessie Wallace Laing, wife of J. F. Edgar, M.R.C.V.S.

* * * * *

R.C.V.S. OBITUARY

Jowett, Walter, Major late S.A.V.C., Major R.A.V.C., (retd.), Edinburgh. Graduated Edinburgh, March 18th, 1898; Fellowship May 20th, 1905. Died March 18th, 1945.

* * * * *

ADDRESSES OF DISEASE-INFECTED PREMISES

Foot-and-Mouth Disease:

Glamorganshire.—Gibbonstown, Cadoxton, Barry (Mar. 21st).
Lancashire.—Stanley Market, Liverpool (Mar. 22nd); Brewery Farm, Tarbock, Prescot (Mar. 22nd).
Warwickshire.—Premises at rear of 12, Partridge Road, Yardley, Birmingham (Mar. 19th); Newlands Lane Field, Marston Green, Birmingham (Mar. 21st); Lower Barn Farm, Sheldon, Birmingham (Mar. 23rd).

Swine Fever:

Essex.—Royal Eastern Counties Institution, Bridge Homes, Witham (Mar. 20th); Rayne Hatch Farm, Stisted (Mar. 22nd); Flying Rats Off-licence, Broadway, Dunmow (Mar. 23rd); Lunendales, Southminster (Mar. 23rd).
Fifeshire.—Drinkbetween Farm, Kirkcaldy (Mar. 23rd).
Hants.—Magdalin Farm, Morn Hill, Winchester (Mar. 22nd).
Lancashire.—Church Brow Farm, Bolton-le-Sands, Carnforth (Mar. 20th).
Lanarkshire.—Phillipshill Piggery, Busby (Mar. 20th).
Nairn.—The Arr, Lethen, Auldearn, Nairn (Mar. 23rd).
Norfolk.—9, Wyndham Park, East Runton, Cromer (Mar. 20th); Street Farm, Matlaske, Norwich (Mar. 21st); Gas Lane, Allotments, Cromer (Mar. 23rd).
Notts.—Greenmile Farm, Babworth, Retford (Mar. 21st).
Stirlingshire.—North Broomage, Larbert, Stirling; No. 10 Smallholding, Barraston, Torrance of Campsie, Stirling (Mar. 23rd).
Yorks.—Beech House, Tibthorpe, Driffield (Mar. 24th).

Sheep Scab:

Derbyshire.—Big Moore, Baslow, Baslow with Bubnell (Mar. 23rd).
Yorks.—Inclose Field, Cautley, Sedbergh (Mar. 17th); Old Paddock, Cautley, Sedbergh (Mar. 17th).

* * * * *

LEGAL NOTES

Slaughter Prosecution Fails.—Proceedings were taken at the Brentwood Petty Sessions on March 15th, at the instance of the Ministry of Food, against S. J. Pepperell, knackerman, and D. King, a cattle dealer, for slaughtering a cow, fit for human consumption, without lawful authority and for failing to colour, in the prescribed manner, meat intended for animal food.

Mr. T. W. Murphy, Enforcement Officer for the Ministry of Food, laid the evidence and witnesses supported the contention that a farmer wishing to dispose of an unruly cow (which it was contended should have been consigned to the Ministry of Food) told a dealer to get it away. The dealer informed King who instructed Pepperell to collect the cow.

The cow was shot on the farm, in the presence of the farmer's son, and taken to the knackery where it was dressed. On the way, Pepperell stopped and cut the animal's throat in order, he said, to make skinning easier and less messy, although he admitted the bleeding was incomplete. Subsequently Murphy visited the knackery and saw the hindquarters of the cow, which were uncoloured, and was informed the forequarters and offal had been sent for dog food. Murphy made a further visit to the knackery in company with two sanitary inspectors, who considered that the hindquarters were fit for human food, although of only second grade quality. On his second visit, which was within 24 hours of the animal having been shot, the hindquarters were coloured in the prescribed manner. The admission by the prosecution that the meat had been coloured within the prescribed period disposed of the second alleged offence.

It was revealed, in evidence, that the farmer received 50s. in payment from the knackerman but that had the cow been healthy and fit for sale in the usual manner it should have been worth about £28.

For the defence, Mr. H. E. Bywater, M.R.C.V.S., F.R.SAN.I., Chief Veterinary Officer and Meat Inspector, County Borough of West Ham, Lecturer and Examiner in meat inspection and Hon. Referee on meat inspection to the War Office, said he had examined the

forequarters and offal of a cow at an animal food shop and found the meat to be dropsical, badly set and not well bled. The heart showed evidence of injury by a wire or other foreign body. He said that the hindquarters from the same animal could not possibly have been fit for human consumption in accordance with Memorandum 62/Foods of the Ministry of Health. Had the hindquarters been inspected within a short time of slaughter, the evidence of dropsy might not have been noted for it was sometimes necessary in doubtful cases to delay a decision for some hours. Asked whether, if an inspector had said the meat was fit for food, he would accept that evidence, he said it depended on the qualification and experience of the inspector. Evidence was given by the defendants, the lorry driver, the purchaser of the meat, and the man in charge of the shop, to show that the meat examined by Mr. Bywater was the forequarters and offal from the cow in question.

The charges against the defendants were thereupon dismissed.

Records Burned in Swine Fever Case.—In a recent case (reported in *The Farmers' Weekly*) fines totalling £60 were imposed by Callington, Cornwall, magistrates on Leslie John Elliott, of Smeaton Farm, St. Anns Chapel, Gunnislake, charged with not reporting 85 pigs and seven carcases affected with swine fever; not retaining movement of animals record for 12 months; and not producing the movements record for inspection. He was also ordered to pay costs of £1 11s. 6d.

For the prosecution it was stated that Elliott sent five live pigs and a carcase to Launceston abattoir on January 27th. On February 3rd he sent 79 pigs to the abattoir on the plea that they had caught a chill. Some died on the journey, and some were "off their legs," All 79 carcases were examined and condemned as unfit for human consumption. Swine fever was confirmed. Elliott's farm was visited by the police but there were no pigs left. Seven carcases were found buried on the farm and when they were exhumed and examined, it was certified that swine fever had existed in all of them.

Elliott admitted that he buried the seven carcases between January 27th and February 3rd. He also admitted having burnt his Movement of Animals Record during the investigations.

He was fined £50 on the first charge and £10 in respect of the remaining charges.

* * * * *

YORKSHIRE COUNTY HORSE ASSOCIATION

It is proposed to form a County Horse Association in Yorkshire, and with this end in view a meeting has been arranged in the Sam Wilson Room, The Art Gallery, Leeds, at 3 p.m. on Saturday, April 7th. It is felt by the Council of the Yorkshire Division that the profession should lend its support to this project which has as its aim the advancement of the horse. The President of the Division has been asked to attend, and he hopes that as many other veterinary surgeons as possible will be present.

* * * * *

WOMEN IN THE PROFESSIONS

A comprehensive report on the anomalies with which women are confronted in public life, and their position on wage negotiating machinery, was presented by the Reconstruction Sub-committee of the British Federation of Business and Professional Women at that organisation's International Night held at Grosvenor House recently.

The report opens with some figures which (says *The Times*) will surprise most people. Taken from the census of 1931, they show that 438,235 women were engaged in professional occupations, as against 402,306 men. It is to be seen, it states, from the data obtained, that full training facilities are not at present granted to women, that when they are able to become properly qualified they are debarred from positions on grounds of sex, and that the marriage bar has not been lifted from all trades and professions. A list is given of no fewer than 17 public bodies on which no women serve.

Copies of the report are obtainable from the Federation's headquarters, 20, Regent Street, price 1s.

* * * * *

CALLING-UP OF VETERINARY PERSONNEL

At a recent meeting of the Hampshire Executive of the National Farmers' Union it was decided to support the following resolution received from the Winchester Branch: "That this branch of the N.F.U. urges headquarters to make strong representations to the Minister of Agriculture against the continued depletion of the veterinary personnel of this country by calling up, asking him to take steps to ensure that a sufficient number of freshly qualified men are reserved from calling up in order to fill the present vacancies. This branch points out that if milk production in particular is of vital importance to the country it is essential that not only the panel scheme, which is already doing good work in the eradication of certain diseases, should be maintained, but that under existing circumstances there are not sufficient veterinary surgeons for the tuberculin testing and ordinary general practice, and that unless the position is taken in hand at once the consequences to animal health, and consequently production, will be very serious."

* * * * *

NEW FELLOWS OF THE ROYAL SOCIETY

Among the Fellows recently elected by the Royal Society are Leonard Colebrook, of the scientific staff of the Medical Research Council; Herbert Davenport Kay (Reading), Director of the National Institute for Research in Dairying; Kathleen Lonsdale (London), Physicist, Royal Institution; William Wright Smith (Edinburgh), Regius Professor of Botany and Keeper of the Royal Botanic Gardens; Marjory Stephenson (Cambridge), of the scientific staff of the Medical Research Council; and John Zachary Young (Oxford), university lecturer in Zoology.

* * * * *

AGRICULTURAL SCHOLARSHIPS

The Ministry of Agriculture and Fisheries invites applications for the undermentioned scholarships:—

Ten Senior scholarships, tenable at University Departments of Agriculture, or Agricultural Colleges, for degree or diploma courses in an agricultural subject; or at Veterinary Colleges for courses in veterinary science;

Six Extended Junior scholarships (for those who have already held Junior awards), and 60 Junior scholarships, tenable at Farm Institutes or similar institutions, for courses not exceeding a year, in agriculture, horticulture, dairying or poultry husbandry.

The scholarships are open to the sons and daughters of agricultural workmen or of working bailiffs, smallholders and other rural workers whose means and method of livelihood are comparable with those of agricultural workmen, and to persons who are themselves *bona fide* workers in agriculture. The value of the awards is such that neither the recipients nor their parents are normally required to make any contribution towards the cost of the training provided. The usual method of selection is by interview, no written examination being held, but candidates must be able to satisfy the Selection Committee that they are in a position to derive educational benefit from the proposed course of instruction and that they intend to follow an agricultural pursuit on completion of their training.

Full information concerning the scheme and forms of application may be obtained from the Secretary of the Ministry, Block 4, Bickenhall Mansions, Baker Street, London, W.1, or from the offices of County Councils. The latest date for submitting applications is April 30th, 1945.

* * * * *

COLONIAL DEVELOPMENT AND WELFARE BILL

"The essential feature of the new Bill dealing with Colonial development, which should be of interest to administrators, scientific men and technologists, and all who are concerned with the welfare and advancement of the British Colonial possessions," observes *Nature* in its issue of March 24th, "is that it represents a notable extension of the Colonial Development and Welfare Act of 1940. The extension concerns both the annual provision of funds and the period over which they will be available. Put briefly, whereas the Act of 1940 made available a sum of £5,000,000 per annum for development and £500,000 per annum for research, until 1951, the new Act makes available, unless 'Parliament otherwise determines,' a sum of £120,000,000 for all purposes during the period 1946-56. A commendable elasticity, which all who are responsible for new schemes whether of research or development will appreciate, is a feature of the new enactment. Thus it is explicitly stated that no time limit is imposed on schemes of research and investigation and up to £1,000,000 can be spent on such schemes in any one year. For all purposes, up to £17,500,000 may be expended in any one year.

"Few will disagree with these measures. Substantial help for the Colonies has been long overdue. Now, it is reasonable to hope that definite schemes may not only be planned and set in motion but also actually carried through to fruition. Readers of *Nature* are already familiar with the very diverse developmental, constructional, sociological and research projects which require and are receiving attention under the Colonial Development and Welfare scheme. In particular, it may be pointed out that members of university staffs and of the teaching profession in Britain, as also in the Dominions and in the Colonies, have a very real responsibility for the successful outcome of the new Bill. The key to success can be stated in a single word: personnel. Personnel for administration, technology and research. The production of suitable candidates for the many and varied jobs is the task of the schools and universities. In these days it is one beset with difficulties, and it may well be that some years must elapse before suitable staff for some of the research posts, for example, in biology, can be produced. But the task lies clearly before us. The sooner we begin, the better for the welfare of the British Colonies."

BOVINE MASTITIS

The following notes relative to bovine mastitis appear in a recent issue of the *Veterinary Science Newsletter* (U.S.A.):—

"With all the major cattle plagues under control in the United States, mastitis of the dairy cow stands out as Enemy No. 1 of milk production, according to surveys and researches in recent years by Peterson, of the Dairy Department, University of Minnesota and other investigating agencies, including the National Research Council.

"While various micro-organisms have been incriminated, it is no longer disputed that *Streptococcus agalactiae* is the main offender to be exterminated. Investigational work has proved that this organism invades the galactophorous sinus by way of the teat canal, that it propagates rapidly in the milk channels, and that the milkers' hands or teat cups of the milking machine are prime factors in spreading the infection from cow to cow. Control measures must, therefore, be directed to the technique of milking in which the cow herself must co-operate.

"Cleansing the udder, clean hands or teat cups, and milking rapidly and completely without disturbing the cow are the imperative preventive measures. The cow must be kept in a calm mood to 'let down' her milk, a process governed by the flow of pituitary hormone into the udder during the milking period. If disturbed, annoyed, or excited in any degree, the mechanism of milking is interrupted and milk not removed as a consequence remains in the galactophorous sinus and milk ducts as a medium for infection until the next milking.

"Furthermore, milk is 'held up' through the inhibiting action of epinephrine which disturbance brings into the udder. Rapid and complete milking and complacent cows are basic essentials in the control of bovine mastitis."

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

* * * * *

THE ABATTOIR: ITS PLACE IN VETERINARY EDUCATION AND RESEARCH

Sir,—In his essay on Veterinary Education (*Vet. Rec.*, February 3rd), Mr. McFarlane discusses the value of the knackery as a means of providing material for education purposes, but makes no reference to the public abattoir. I feel that, in this connection, the abattoir is worthy of some consideration.

Research work on distomatosis, the tuberculin test and Salmonella infection, and the experience gained by students and practitioners in the early detection of pregnancy and abnormalities of the bovine genital organs, are recent examples of the value of the abattoir in education and research.

As Mr. McFarlane suggests, there may be no conceivable method whereby the beginnings of disease can be centralised for teaching purposes, but there seems no reason why the student and teacher should not forsake the college laboratory sometimes for the abattoir and take advantage of the concentration of livestock and the variety of diseases to be found there. I would not claim that the abattoir is the complete answer to the problem of providing adequate material for educational purposes, but it does offer the clinical student a useful opportunity of seeing the beginnings of disease under the direct guidance of his teacher, with a ready means of checking diagnosis by *post-mortem* examination.

Perhaps it would be to the student's advantage if his interest in the abattoir began even earlier in the curriculum. Too often his knowledge of anatomy, for example, is based on laboratory specimens that are fixed and bleached by long immersion in formalin solution or artificially tinted. Thus he may be unfamiliar with the fresh normal organs and tissues of animals, both young and mature, until he visits the abattoir to study meat inspection, and by that time he will have completed a course of instruction on pathology, including morbid anatomy. The student can also study surface anatomy in the abattoir lairage (and in livestock markets that are often nearby), and have practice in palpating and visualising in the living subject the deeper structures he has dissected in the college laboratory. In this way he will develop in his mind a clearer picture of the anatomy of living animals instead of a reproduction of the text-book script or a jumble of names and mnemonics.

In the abattoir lairage (and adjacent market) the student of animal husbandry and physiology will find ample material for the quiet observation of animals and their habits, the identification of breeds and types, age and sex. He can also carry his observations further in other parts of the abattoir and see much to interest him in the slaughtering process and *post-mortem* changes.

The possible value of the abattoir in the study of pathology must be fairly obvious. A suitable laboratory at the abattoir would be an asset to this Department, and could also be available for research work.

With regard to research, it seems wasteful that the immense variety of normal and pathological material in large abattoirs is so seldom utilised for the advancement of knowledge. This thought must have passed through the minds of most veterinary meat inspectors. The necessary material may be found there for a complete survey and permanent pathological record of many diseases to which food animals are subject. Likewise there is need for an histological survey of all the organs and tissues of domestic animals in different stages of their development. The histologist and anatomist could also study variations, especially in relation to disease—such an investigation might help to explain the occurrence in some cows of a high degree of natural resistance to mastitis, and throw some light on the pathogenesis of this condition; among other things, it might also explain why the bacterial content of milk from some cows is constantly high and in others consistently low.

There is indeed scope at any large abattoir for a whole-time Veterinary Investigation Officer. Working in conjunction with specialist histologists, pathologists, bacteriologists, etc., he could build up a store of fundamental knowledge about animals in health and disease and make such preliminary investigations as are possible in the abattoir before field experiments or new lines of research are undertaken. Disease as encountered in the abattoir may be a useful guide to the nature and prevalence of disease in the area from which supplies are drawn, and the Abattoir V.I.O. would find much in common with his colleagues in the field. He could also provide a regional laboratory service for veterinary practitioners, and work in close co-operation with officers engaged officially in the control of disease.

Whether the Abattoir V.I.O. be a member of the Meat Inspection Staff, Veterinary College, or some other organisation is unimportant at the moment. I would only suggest that it might be a good thing for veterinary officers engaged in meat inspection—and for the Meat Inspection Service—if, in addition to their official public health duties, they were called upon to take a more active interest in the investigation of disease problems; their special interest in anatomy and pathology is an excellent qualification for this work.

The above suggestions could be developed, in my opinion, without interfering with the normal functions of the abattoir. With this assurance it is most unlikely that any abattoir authority or their tenants would deny reasonable facilities to educational and research bodies.

Yours faithfully,

283, Bromford Road, Ward End, Birmingham, 8. THOS. JOHNSTON.

March 17th, 1945.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Parasitic Mange*	Sheep Scab	Swine Fever
Feb. 16th to 28th, 1945...	4	12	1	5	28
Corresponding period in—					
1944 ...	7	—	—	6	18
1943 ...	12	1	—	13	23
1942 ...	10	7	1	18	12
Total Jan. 1st to Feb. 28, 1945	22	37	2	16	173
Corresponding period in—					
1944 ...	46	3	3	46	97
1943 ...	58	9	2	64	86
1942 ...	56	10	9	80	73

NOTE.—The figures for the current year are approximate only.
* Excluding outbreaks in Army Horses.

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at February 28th, 1945, was as follows:—

England	Wales	Scotland	Total (Great Britain)
4,505	8,447	4,402	17,354